# Refine Search

### Search Results -

| Terms | Documents |
|-------|-----------|
| L2 or L5 | 54 |

**Database:**

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**Search:**   L6

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### Search History

**DATE:   Wednesday, September 08, 2004      Printable Copy      Create Case**

| Set Name Query | Hit Count | Set Name |
|----------------|-----------|----------|
| side by side | | result set |
| *DB=PGPB,USPT,USOC; PLUR=YES; OP=OR* | | |
| L6    12 or L5 | 54 | L6 |
| L5    L4 same (compar$3 near10 monitor$3) | 36 | L5 |
| L4    generat$3 same trigger same output same condition | 11198 | L4 |
| L3    generat$3 trigger same output same condition | 1989782 | L3 |
| L2    compar$3 same (trigger adj1 condition) same bus | 20 | L2 |
| L1    compar$3 near5 (trigger adj1 condition) near10 bus | 2 | L1 |

END OF SEARCH HISTORY

h        e  b        b  cg  b        e  e  ch

# Refine Search

## Search Results -

| Terms | Documents |
|---|---|
| L6 | 0 |

**Database:**

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**Search:**

L7

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## Search History

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| *DB=PGPB,USPT,USOC; PLUR=YES; OP=OR* | | |
| L6　l2 or L5 | 54 | L6 |
| L5　L4 same (compar$3 near10 monitor$3) | 36 | L5 |
| L4　generat$3 same trigger same output same condition | 11198 | L4 |
| L3　generat$3 trigger same output same condition | 1989782 | L3 |
| L2　compar$3 same (trigger adj1 condition) same bus | 20 | L2 |
| L1　compar$3 near5 (trigger adj1 condition) near10 bus | 2 | L1 |

END OF SEARCH HISTORY

h　　e　b　　　b　cg　b　　e　e　ch

# Refine Search

## Search Results -

| Terms | Documents |
|---|---|
| (345/10 \|345/700 \|717/128 \|717/129 \|710/100 \|710/52 \|712/33 \|712/35 \|713/502 \|714/47 \|714/30 \|714/25 \|714/45 \|714/726 \|714/39).ccls. | 7898 |

**Database:**

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IBM Technical Disclosure Bulletins

**Search:**

L8

[ Refine Search ]

[ Recall Text ⬍ ]    [ Clear ]    [ Interrupt ]

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## Search History

**DATE:   Wednesday, September 08, 2004**   <u>Printable Copy</u>   <u>Create Case</u>

| Set Name | Query | Hit Count | N r |
|---|---|---|---|
| side by side | | | |
| | *DB=PGPB,USPT,USOC; PLUR=YES; OP=OR* | | |
| <u>L8</u> | 714/47,30,25,45,726,39;710/100,52;712/33,35;717/128,129;713/502;345/10,700.ccls. | 7898 | |
| | *DB=EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR* | | |
| <u>L7</u> | L6 | 0 | |
| | *DB=PGPB,USPT,USOC; PLUR=YES; OP=OR* | | |
| <u>L6</u> | l2 or L5 | 54 | |
| <u>L5</u> | L4 same (compar$3 near10 monitor$3) | 36 | |
| <u>L4</u> | generat$3 same trigger same output same condition | 11198 | |
| <u>L3</u> | generat$3 trigger same output same condition | 1989782 | |
| <u>L2</u> | compar$3 same (trigger adj1 condition) same bus | 20 | |
| <u>L1</u> | compar$3 near5 (trigger adj1 condition) near10 bus | 2 | |

END OF SEARCH HISTORY

h          e  b          b   cg  b          e  e  ch

# Refine Search

## Search Results -

| Terms | Documents |
|--------|-----------|
| L6 and L8 | 9 |

**Database:**
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US Patents Full-Text Database
US OCR Full-Text Database
EPO Abstracts Database
JPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins
```

**Search:**
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L9
```

[Refine Search]

[Recall Text ⬍]   [Clear]   [Interrupt]

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## Search History

**DATE: Wednesday, September 08, 2004**   Printable Copy   Create Case

| Set Name | Query | Hit Count | N r |
|-----------|-------|-----------|-----|
| side by side | DB=PGPB,USPT,USOC; PLUR=YES; OP=OR | | |
| L9 | l6 and L8 | 9 | |
| L8 | 714/47,30,25,45,726,39;710/100,52;712/33,35;717/128,129;713/502;345/10,700.ccls. | 7898 | |
| | DB=EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR | | |
| L7 | L6 | 0 | |
| | DB=PGPB,USPT,USOC; PLUR=YES; OP=OR | | |
| L6 | l2 or L5 | 54 | |
| L5 | L4 same (compar$3 near10 monitor$3) | 36 | |
| L4 | generat$3 same trigger same output same condition | 11198 | |
| L3 | generat$3 trigger same output same condition | 1989782 | |
| L2 | compar$3 same (trigger adj1 condition) same bus | 20 | |
| L1 | compar$3 near5 (trigger adj1 condition) near10 bus | 2 | |

END OF SEARCH HISTORY

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**EAST - [Untitled1:1]**

File  View  Edit  Tools  Window  Help

Drafts
Pending
Active
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Saved
Favorites
Tagged (0)
UDC
Queue
Trash

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DBs | USPAT                                          ☑ Plurals
Default operator: | OR |                             ☑ Highlight all hit terms initially

BRS I...  |  IS&R...  |  Image  |  Text  |  HTML

| | Type | L # | Hits | Search Text | DBs | Time Stamp | Comments | Error Definition | Err |
|---|------|-----|------|-------------|-----|-----------|----------|------------------|-----|
| 1 | BRS | L1 | 5 | generat$3 near10 (trigger adj1 output) near10 | USPAT | 2004/09/08 09:49 | | | 0 |

Start | Proxima SSO | EAST - [Untitled1...

EAST - [Untitled1:1]

File  View  Edit  Tools  Window  Help

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    L1:  (5) generat$3 near10 (tr
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Favorites
Tagged (0)
UDC
Queue
Trash

Search | List | Browse | Queue | Clear

DBs | USPAT                                    ☑ Plurals

Default operator: | OR |                        ☑ Highlight all hit terms initially

generat$3 near10 (trigger adj1 output) near10 (trigger adj1
condition)

BRS I...  | IS&R... | Image | Text | HTML

| | U | 1 | Document ID | Issue Date | Pages | Title | Current OR | Current XRef | R |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | ☐ | US 6618775 B1 | 20030909 | 28 | DSP bus monitoring apparatus and method | 710/100 | 712/35; 714/30; | |
| 2 | ☐ | ☐ | US 5226153 A | 19930706 | 14 | Bus monitor with time stamp means for independently | 714/45 | 340/2.7; 702/187; | |
| 3 | ☐ | ☐ | US 5210862 A | 19930511 | 16 | Bus monitor with selective capture of independently | 714/45 | | |
| 4 | ☐ | ☐ | US 5206948 A | 19930427 | 14 | Bus monitor with means for selectively capturing | 714/45 | | |
| 5 | ☐ | ☐ | US 5142673 A | 19920825 | 14 | Bus monitor with dual port memory for storing | 714/39 | | |

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generat* and trigger and condition and compar*        Search

☐ Check to search within this result set

**Results Key:**
**JNL** = Journal or Magazine   **CNF** = Conference   **STD** = Standard

1 **Streamer current in a three-electrode system**
*Akyuz, M.; Gao, L.; Cooray, V.; Larsson, A.;*
Dielectrics and Electrical Insulation, IEEE Transactions on [see also Electrical
Insulation, IEEE Transactions on] , Volume: 8 , Issue: 4 , Aug. 2001
Pages:665 - 672

[Abstract]    [PDF Full-Text (728 KB)]    **IEEE JNL**

2 **Charge carrier avalanche multiplication in high-voltage diodes trigg
by ionizing radiation**
*Soelkner, G.; Voss, P.; Kaindl, W.; Wachutka, G.; Maier, K.H.; Becker, H.-W.*
Nuclear Science, IEEE Transactions on , Volume: 47 , Issue: 6 , Dec. 2000
Pages:2365 - 2372

[Abstract]    [PDF Full-Text (201 KB)]    **IEEE JNL**

3 **The breakdown fields and risetimes of select gases under the condi·
of fast charging (/spl sim/ 20 ns and less) and high pressures (20-10
atmospheres)**
*Carboni, V.; Lackner, H.; Giri, D.; Lehr, J.;*
Pulsed Power Plasma Science, 2001. PPPS-2001. Digest of Technical
Papers , Volume: 1 , 17-22 June 2001
Pages:482 - 486 vol.1

[Abstract]    [PDF Full-Text (487 KB)]    **IEEE CNF**

4 **The influence of electron density on the formation of streamers in
electrical discharges triggered with ultrashort laser pulses**
*La Fontaine, B.; Vidal, F.; Comtois, D.; Ching-Yuan Chien; Desparois, A.; Joh
T.W.; Kieffer, J.-C.; Mercure, H.P.; Pepin, H.; Rizk, F.A.M.;*

h     eee     e ece   g e  ch e  ch e               e     c e      e   ec   e

Plasma Science, IEEE Transactions on , Volume: 27 , Issue: 3 , June 1999
Pages:688 - 700

[Abstract]    [PDF Full-Text (248 KB)]    **IEEE JNL**

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5 **Analysis of a passive superconducting fault current limiter**
*Cha, Y.S.; Zhongjin Yang; Turner, L.R.; Poeppel, R.B.;*
Applied Superconductivity, IEEE Transactions on , Volume: 8 , Issue: 1 , Marc
1998
Pages:20 - 25

[Abstract]    [PDF Full-Text (188 KB)]    **IEEE JNL**

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6 **Voltage pulse forming dynamics in a transmission line section empl
photoconductive charging and discharging**
*Buck, J.A.; Kesler, M.P.;*
Microwave Theory and Techniques, IEEE Transactions on , Volume: 42 , Issue
9 , Sept. 1994
Pages:1632 - 1637

[Abstract]    [PDF Full-Text (504 KB)]    **IEEE JNL**

---

7 **Dynamics of fibrin clot lysis under flow conditions by erythrocyte-li
tPA**
*Goel, M.S.; Murciano, J.-C.; Medinilla, S.; Yamamoto, A.; Cines, D.B.; Muzyk
V.R.; Diamond, S.L.;*
[Engineering in Medicine and Biology, 2002. 24th Annual Conference and the
Annual Fall Meeting of the Biomedical Engineering Society] EMBS/BMES
Conference, 2002. Proceedings of the Second Joint , Volume: 1 , 2002
Pages:520 vol.1

[Abstract]    [PDF Full-Text (163 KB)]    **IEEE CNF**

---

8 **The Atlas load protection switch**
*Davis, H.A.; Ballard, E.O.; Dorr, G.; Martinez, M.; Gribble, R.F.; Nielsen, K.E.
Pierce, D.; Parsons, W.M.;*
Pulsed Power Conference, 1999. Digest of Technical Papers. 12th IEEE
International , Volume: 2 , 27-30 June 1999
Pages:941 - 944 vol.2

[Abstract]    [PDF Full-Text (420 KB)]    **IEEE CNF**

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**» ABSTRACT PLUS**

# The Atlas load protection switch

Davis, H.A.   Ballard, E.O.   Dorr, G.   Martinez, M.   Gribble, R.F.   Nielsen, K.E.   Pierce, D.
Parsons, W.M.
Los Alamos Nat. Lab., NM, USA;

*This paper appears in:* **Pulsed Power Conference, 1999. Digest of Technical Papers. 12th IEEE International**

Meeting Date: 06/27/1999 - 06/30/1999
Publication Date: 27-30 June 1999
Location: Monterey, CA USA
On page(s): 941 - 944 vol.2
Volume: 2
Reference Cited: 6
Number of Pages: 2 vol. 1529
Inspec Accession Number: 6537420

**Abstract:**
Atlas is a high-energy pulsed-power facility under development to study materials properties and hydrodynamics experiments under extreme **conditions.** Atlas will implode heavy liner loads (m~45 gm) with a peak current of 27-32 MA delivered in 4 μs, and is energized by 96, 240 kV Marx **generators** storing a total of 23 MJ. A key design requirement for Atlas is obtaining useful data for 95% of all loads installed on the

**Print Format**

machine. Materials response calculations show current from a prefire can damage the load requiring expensive and time consuming replacement. Therefore, we have incorporated a set of fast-acting mechanical switches in the Atlas design to reduce the probability of a prefire damaging the load. These switches, referred to as the load protection switches, short the load through a very low inductance path during system charge. Once the capacitors have reached full charge, the switches open on a time scale short **compared** to the bank charge time, allowing current to flow to the load when the **trigger** pulse is applied. The time window of vulnerability for load damage is thus substantially reduced. The design of the load protection switches and test results are presented

## Index Terms:
protection  pulse **generators**  pulsed power supplies  pulsed power switches  23 MJ  240 kV  27 to 32 MA  4 mus  45 g  Atlas load protection switch  Marx **generators**  fast-acting mechanical switches  heavy liner loads implosion  high-energy pulsed-power facility  hydrodynamics  experiments  materials properties  materials response calculations  prefire current  **trigger** pulse  very low inductance path

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# Hit List

## Search Results - Record(s) 1 through 9 of 9 returned.

☐  1.  Document ID:  US 20030120980 A1

**Using default format because multiple data bases are involved.**

```
   L9: Entry 1 of 9                        File: PGPB              Jun 26, 2003


PGPUB-DOCUMENT-NUMBER: 20030120980
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030120980 A1

TITLE: System trace unit

PUBLICATION-DATE: June 26, 2003

INVENTOR-INFORMATION:
NAME                     CITY                    STATE   COUNTRY     RULE-47
Harris, Jeremy G.        Buckinghamshire                 GB

US-CL-CURRENT: 714/45
```

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De |

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☐  2.  Document ID:  US 6618775 B1

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   L9: Entry 2 of 9                        File: USPT              Sep 9, 2003

US-PAT-NO: 6618775
DOCUMENT-IDENTIFIER: US 6618775 B1
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**\*\* See image for Certificate of Correction \*\***

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TITLE: DSP bus monitoring apparatus and method
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| Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De |

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☐  3.  Document ID:  US 6378092 B1

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   L9: Entry 3 of 9                        File: USPT              Apr 23, 2002

US-PAT-NO: 6378092
DOCUMENT-IDENTIFIER: US 6378092 B1

TITLE: Integrated circuit testing
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`Full | Title | Citation | Front | Review | Classification | Date | Reference |░░░░░|░░░░░| Claims | KWIC | Draw De`

☐  4.   Document ID: US 5964893 A

L9: Entry 4 of 9                    File: USPT                         Oct 12, 1999

US-PAT-NO: 5964893
DOCUMENT-IDENTIFIER: US 5964893 A

TITLE: Data processing system for performing a trace function and method therefor

`Full | Title | Citation | Front | Review | Classification | Date | Reference |░░░░░|░░░░░| Claims | KWIC | Draw De`

☐  5.   Document ID: US 5581745 A

L9: Entry 5 of 9                    File: USPT                         Dec 3, 1996

US-PAT-NO: 5581745
DOCUMENT-IDENTIFIER: US 5581745 A

TITLE: Apparatus for suspending the bus cycle of a microprocessor by inserting wait
states

`Full | Title | Citation | Front | Review | Classification | Date | Reference |░░░░░|░░░░░| Claims | KWIC | Draw De`

☐  6.   Document ID: US 5226153 A

L9: Entry 6 of 9                    File: USPT                         Jul 6, 1993

US-PAT-NO: 5226153
DOCUMENT-IDENTIFIER: US 5226153 A

TITLE: Bus monitor with time stamp means for independently capturing and
correlating events

`Full | Title | Citation | Front | Review | Classification | Date | Reference |░░░░░|░░░░░| Claims | KWIC | Draw De`

☐  7.   Document ID: US 5210862 A

L9: Entry 7 of 9                    File: USPT                         May 11, 1993

US-PAT-NO: 5210862
DOCUMENT-IDENTIFIER: US 5210862 A

TITLE: Bus monitor with selective capture of independently occuring events from
multiple sources

`Full | Title | Citation | Front | Review | Classification | Date | Reference |░░░░░|░░░░░| Claims | KWIC | Draw De`

h     e  b       b  g  e e e f       e     e     e f    b    e

☐  8.  Document ID: US 5206948 A
   L9: Entry 8 of 9                    File: USPT                    Apr 27, 1993

US-PAT-NO: 5206948
DOCUMENT-IDENTIFIER: US 5206948 A

TITLE: Bus monitor with means for selectively capturing trigger conditions

| Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De |
|------|-------|----------|-------|--------|----------------|------|-----------|---|---|--------|------|---------|

☐  9.  Document ID: US 5142673 A
   L9: Entry 9 of 9                    File: USPT                    Aug 25, 1992

US-PAT-NO: 5142673
DOCUMENT-IDENTIFIER: US 5142673 A

TITLE: Bus monitor with dual port memory for storing selectable trigger patterns

| Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De |
|------|-------|----------|-------|--------|----------------|------|-----------|---|---|--------|------|---------|

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| Terms | Documents |
|-------|-----------|
| L6 and L8 | 9 |

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L9: Entry 2 of 9                          File: USPT                    Sep 9, 2003

US-PAT-NO: 6618775
DOCUMENT-IDENTIFIER: US 6618775 B1
** See image for Certificate of Correction **

TITLE: DSP bus monitoring apparatus and method

DATE-ISSUED: September 9, 2003

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|------|------|-------|----------|---------|
| Davis; Henry A. | Soquel | CA | | |

ASSIGNEE-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY | TYPE CODE |
|------|------|-------|----------|---------|-----------|
| Micron Technology, Inc. | Boise | ID | | | 02 |

APPL-NO: 09/ 638461    [PALM]
DATE FILED: August 14, 2000

PARENT-CASE:
CROSS-REFERENCE TO RELATED APPLICATION This application is a continuation of U.S.
patent application Ser. No. 09/026,734 filed Feb. 20, 1998 entitled "DSP Bus
Monitoring Apparatus And Method", abandoned. Pursuant to 35 U.S.C. .sctn.119(e),
this application claims the priority benefit of provisional application No.
60/055,815 filed Aug. 15, 1997.

INT-CL: [07] G06 F 11/30, G06 F 13/00

US-CL-ISSUED: 710/100; 714/30, 714/45, 712/35
US-CL-CURRENT: 710/100; 712/35, 714/30, 714/45

FIELD-OF-SEARCH: 714/47, 714/30, 714/25, 714/40, 714/45, 714/39, 710/52, 710/100,
710/305, 712/33, 712/35, 717/128, 717/129, 713/502, 345/10, 345/700

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|---|--------|------------|---------------|-------|
| ☐ | 5142673 | August 1992 | DeAngelis et al. | 395/575 |
| ☐ | 5210862 | May 1993 | DeAngelis et al. | 395/575 |
| ☐ | 5313618 | May 1994 | Pawloski | 395/500.49 |

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| | | | | |
|---|---|---|---|---|
| ☐ | 5325368 | June 1994 | James et al. | 714/727 |
| ☐ | 5329471 | July 1994 | Swoboda et al. | 395/500.44 |
| ☐ | 5355369 | October 1994 | Greenberger et al. | 714/724 |
| ☐ | 5371551 | December 1994 | Logan et al. | 348/571 |
| ☐ | 5375228 | December 1994 | Leary et al. | 710/33 |
| ☐ | 5463760 | October 1995 | Hamauchi | 395/500.49 |
| ☐ | 5488688 | January 1996 | Gonzales et al. | 710/34 |
| ☐ | 5513338 | April 1996 | Alexander et al. | 395/500.49 |
| ☐ | 5530804 | June 1996 | Edgington et al. | 710/30 |
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| ☐ | 5539901 | July 1996 | Ramirez | 395/500.49 |
| ☐ | 5544311 | August 1996 | Harenberg et al. | 714/40 |
| ☐ | 5546566 | August 1996 | Katsuta | 395/500.49 |
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| ☐ | 5561761 | October 1996 | Hicok et al. | 714/30 |
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| ☐ | 5610826 | March 1997 | Whetsel | 364/487 |
| ☐ | 5621651 | April 1997 | Swoboda | 395/500.44 |
| ☐ | 5623673 | April 1997 | Gephardt et al. | 710/260 |
| ☐ | 5631910 | May 1997 | Nozuyama et al. | 714/724 |
| ☐ | 5640542 | June 1997 | Whitsel et al. | 395/500.49 |
| ☐ | 5671172 | September 1997 | Britton | 365/45 |
| ☐ | 5729678 | March 1998 | Hunt et al. | 395/183.19 |
| ☐ | 5812830 | September 1998 | Naasch-Shahry et al. | |
| ☐ | 5908392 | June 1999 | Wilson et al. | 600/509 |
| ☐ | 5960457 | September 1999 | Skrovan et al. | 711/146 |
| ☐ | 5999163 | December 1999 | Ivers et al. | 345/134 |
| ☐ | 6026503 | February 2000 | Gutgold et al. | |

OTHER PUBLICATIONS

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ART-UNIT: 2181

PRIMARY-EXAMINER: Ray; Gopal C.

ATTY-AGENT-FIRM: Gazdzinski & Associates

ABSTRACT:

A bus monitor is provided as a tool for developing, debugging and testing a system
having an embedded processor. The bus monitor resides within the same chip or
module as the processor, which allows connection to internal processor buses not
accessible from external contacts. The monitor uses a separate circular buffer to
continuously store, in real-time, data traces from each of one or more internal
processor buses. Upon the occurrence of a trigger condition, storage stops and a
trace is preserved. Trigger conditions can depend on events occurring on multiple
buses and are downloaded via an interface from an external device. Data traces are
uploaded via the interface to an external device for evaluation of processor
operation.

13 Claims, 45 Drawing figures

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L9: Entry 9 of 9                File: USPT              Aug 25, 1992

US-PAT-NO: 5142673
DOCUMENT-IDENTIFIER: US 5142673 A

TITLE: Bus monitor with dual port memory for storing selectable trigger patterns

DATE-ISSUED: August 25, 1992

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|------|------|-------|----------|---------|
| De Angelis; Douglas J. | Woburn | MA | | |
| Maddox; Henry W. J. | Franklin | MA | | |
| Peters; Arthur | Sudbury | MA | | |
| Rathbun; Donald J. | Methuen | MA | | |
| Saltmarsh; William L. | Brockton | MA | | |

ASSIGNEE-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY | TYPE CODE |
|------|------|-------|----------|---------|-----------|
| Bull HN Information Systems Inc. | Billerica | MA | | | 02 |

APPL-NO: 07/ 455664   [PALM]
DATE FILED: December 22, 1989

INT-CL: [05] G06F 11/34

US-CL-ISSUED: 395/575; 364/267, 364/267.2
US-CL-CURRENT: 714/39

FIELD-OF-SEARCH: 371/19, 371/15.1, 371/16.1, 364/2MSFile, 364/9MSFile

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

▓ Search Selected ▓ │ ▓ Search ALL ▓ │ ▓ Clear ▓

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ART-UNIT: 236

PRIMARY-EXAMINER: Smith; Jerry

ASSISTANT-EXAMINER: Mychung; Phung

ATTY-AGENT-FIRM: Clapp; Gary D. Solakian; John S.

ABSTRACT:

A monitor for selectively detecting and recording conditions at selected points within a system includes a trigger memory for storing patterns of trigger signals, wherein each pattern of trigger signals corresponds to a selected condition to be detected on first points of the system. The trigger memory includes a first port having a read address input connected from the first points and a data output connected to trigger output logic for providing patterns of trigger signals corresponding to the conditions to be detected. Each pattern of trigger signals is stored in the trigger memory location whose address corresponds to a pattern of signals from the first points representing the corresponding condition to be detected. The trigger memory is a dual port memory having a second port with a write address input and a data input for receiving trigger patterns to be stored therein. The method for generating the trigger patterns includes generating a first trigger pattern map and, from the first map, a second trigger pattern map to be written into a trigger memory which includes a plurality of submemories, wherein each submemory stores a portion of the trigger patterns.

6 Claims, 4 Drawing figures

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US006618775B1

(12) **United States Patent**
Davis

(10) Patent No.: **US 6,618,775 B1**
(45) Date of Patent: **Sep. 9, 2003**

(54) **DSP BUS MONITORING APPARATUS AND METHOD**

(75) Inventor: **Henry A. Davis**, Soquel, CA (US)

(73) Assignee: **Micron Technology, Inc.**, Boise, ID (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/638,461

(22) Filed: **Aug. 14, 2000**

**Related U.S. Application Data**

(63) Continuation of application No. 09/026,734, filed on Feb. 20, 1998, now abandoned.
(60) Provisional application No. 60/055,815, filed on Aug. 15, 1997.

(51) Int. Cl.⁷ ............................. G06F 11/30; G06F 13/00
(52) U.S. Cl. ........................... 710/100; 714/30; 714/45; 712/35
(58) Field of Search ..................... 714/47, 30, 25, 714/40, 45, 39; 710/52, 100, 305; 712/33, 35; 717/128, 129; 713/502; 345/10, 700

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*Primary Examiner*—Gopal C. Ray
(74) *Attorney, Agent, or Firm*—Gazdzinski & Associates

(57) **ABSTRACT**

A bus monitor is provided as a tool for developing, debugging and testing a system having an embedded processor. The bus monitor resides within the same chip or module as the processor, which allows connection to internal processor buses not accessible from external contacts. The monitor uses a separate circular buffer to continuously store, in real-time, data traces from each of one or more internal processor buses. Upon the occurrence of a trigger condition, storage stops and a trace is preserved. Trigger conditions can depend on events occurring on multiple buses and are downloaded via an interface from an external device. Data traces are uploaded via the interface to an external device for evaluation of processor operation.

**13 Claims, 18 Drawing Sheets**

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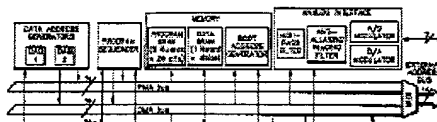
US005210862A

# United States Patent [19]

## DeAngelis et al.

[11]   Patent Number:   **5,210,862**

[45]   Date of Patent:   **May 11, 1993**

[54] **BUS MONITOR WITH SELECTIVE CAPTURE OF INDEPENDENTLY OCCURING EVENTS FROM MULTIPLE SOURCES**

[75] Inventors: Douglas J. DeAngelis, Woburn; Henry W. J. Maddox, Franklin; Arthur Peters, Sudbury; Donald J. Rathbun, Methuen; William L. Saltmarsh, Brockton, all of Mass.

[73] Assignee: Bull HN Information Systems Inc., Billerica, Mass.

[21] Appl. No.: 455,667

[22] Filed: Dec. 22, 1989

[51] Int. Cl.5 .................................. G06F 11/34
[52] U.S. Cl. .......................... 395/575; 364/267; 364/267.2; 364/DIG. 1
[58] Field of Search ............. 364/200, 900; 371/15.1, 371/16.1, 19

[56] **References Cited**

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| 4,937,740 | 6/1990 | Agarwal | 371/19 X |

Primary Examiner—Robert W. Beausoliel
Attorney, Agent, or Firm—Gary D. Clapp; John S. Solakian

[57]   **ABSTRACT**

A monitor device for selectively detecting and recording conditions at selected points within a system during operation, including a trigger enable memory for storing selectable trigger enabling codes wherein each code corresponds to a trigger signal representing the occurrence of a corresponding condition to be detected, a trigger generation device connected from first selected points and responsive to selected conditions thereupon for generating the trigger signals representing the occurrence of selected conditions, a trigger output device responsive to the enabling codes and the trigger signals for providing trigger outputs upon the occurrence of a trigger signal corresponding to a selected trigger enabling code, and a silo bank memory connected from second selected points and responsive to the trigger outputs for recording conditions present at the second points.

30 Claims, 5 Drawing Sheets